REMARKS/ARGUMENTS

Claim 6 is new.

Claims 1-3 and 5 are canceled.

Claim 4 remains pending.

Support for new Claim 6 is found at the originally filed claims and throughout the originally filed specification. Additionally, support for new Claim 6 is found, for example, at page 7, line 25 through page 8, line 8, of the originally filed specification.

No new matter is believed to have been added.

Applicants respectfully traverse the indefiniteness rejection of Claim 4.

The catalyst of present Claims 4 comprises particles containing silica and a composite oxide including at least molybdenum. The "bulk composition" of the catalyst denotes a composition of the entire aggregate of the catalyst particles of at least several tens of milligrams.

Generally, the Mo/Si atomic ratio materials is thought to be equal to the ratio of the charged raw materials from the preparation stage of the catalyst (see for example, the originally filed specification page 3, lines 17-18, and page 3, line 24 to page 4, line 1).

Conversely, the "surface composition" denotes the ratio of the elements composing the very surface layer of each catalyst particle. The very surface layer denotes the layer from the particle surface to a depth of around several nanometers (see, for example, the originally filed specification, page 4, lines 2-5).

Since the composition of the whole aggregate of the catalyst particles is the "bulk composition of the catalyst" and the ratio of elements composing the very surface layer of each catalyst particle is the "catalyst particle surface composition," Applicants submit that one of ordinary skill in the art would readily understand that the elements, but not the ratios

of all the elements, of the surface composition of the catalyst particle and the bulk composition of the catalyst particle are the same.

Accordingly, Applicants submit that Claim 4 is definite. Withdrawal of the indefiniteness rejection is respectfully requested.

The anticipation rejection of Claim 4 as being unpatentable in view of Sasaki is respectfully traversed.

Present Claim 4 is drawn to a catalyst for acrylonitrile synthesis characterized in that the Mo/Si atomic ratio in the bulk composition of the catalyst, expressed as A, and the Mo/Si atomic ratio in surface composition of the catalyst particles, expressed as B, have a relationship such that B/A is not greater than 0.6.

A preferred process of preparing the catalyst of present Claim 4 includes the following steps.

(1) The liquid temperature when preparing an aqueous slurry is preferably not greater than 60°C, and more preferably not greater than 45°C (see, for example, page 5, lines 1-3, of the originally filed specification);

(2) It is preferable not to provide a treatment such as aging, concentration, and the like to the aqueous slurry (see, for example, page 5, lines 5-7, of the originally filed specification).

(3) In colloidal silica, the size (diameter) of the colloidal particle is preferably 2 to 100 nm, and more preferably to be 5 to 50 nm (see, for example, page 5, lines 19-21, of the originally filed specification).

(4) In a drying chamber, the temperature of the hot air near the inlet of the drying chamber is preferably 130 to 350°C, and more preferably 140 to 300°C (see, for example, page 8, lines 2-4, of the originally filed specification).

(5) In the drying chamber, the temperature of the hot air near the outlet of the drying chamber is preferably 100 to 200°C, and more preferably 110 to 180°C (see, for example, page 8, lines 4-6, of the originally filed specification).

(6) In the drying chamber, the difference between these temperatures near the inlet and near the outlet is preferably 20 to 60°C, and more preferably 25 to 45°C (see, for example, page 8, lines 6-8, of the originally filed specification).

Sasaki does not disclose or suggest steps (1) to (3) above.

Further, step (6) is believed to be the most important among steps (4) to (6). When the difference between the temperatures near the inlet and near the outlet of the drying chamber is decreased to 20 to 60°C to provide a mild dry condition, the catalyst of present Claim 4 is obtained.

In contrast to having the difference between the temperatures near the inlet and the outlet of the drying chamber decreased to 20 to 60°C, Applicants submit that one of ordinary skill in the art would typically by motivated to improve production efficiency of the catalyst by increasing the difference between the inlet and outlet temperatures as much as possible (e.g., to at least 100°C).

Indeed, Sasaki discloses the difference between inlet/outlet temperatures in Sasaki's drying chamber as being 160°C (see, for example, Examples 1 and 25 of Sasaki), so it is clear that Sasaki's inlet/outlet temperature difference of 160°C is out of the range inlet/outlet temperature difference of 20 to 60°C of step (6).

Because the catalyst of Sasaki is made by a different process than the catalyst of present Claim 4, Applicants submit that it follows that the catalyst of Sasaki is different from the catalyst of present Claim 4, and the Office has offered no convincing evidence to refute this assertion.

In support of this assertion, Applicants note that in Example 1 (of the invention), the inlet temperature is 200°C and the outlet temperature is 160°C (see page 13, lines 13-15, of the originally filed specification) for a temperature difference of 40°C; whereas in Comparative Example 1 (not of the invention), the inlet temperature is 300°C and the outlet temperature is 190°C (see page 14, lines 19-20, of the originally filed specification) for a temperature difference of 110°C.

Thus, Example 1 is an inventive embodiment and Comparative Example 1 is not an inventive embodiment. Comparative Example 1, with an inlet / outlet temperature difference of 110°C, is outside of inlet/outlet temperature difference range of 20°C to 60°C, as is Sasaki with an inlet/outlet temperature difference of 160°C.

The data from Example 1 (of the invention) show that the ratio of Mo/Si in the surface composition of the catalyst particles to the Mo/Si atomic ratio in the bulk composition of the catalyst is 0.42.

In contrast, the data from Comparative Example 1 (not of the invention and, like Sasaki, with an inlet/outlet temperature difference well exceeding the range of 20°C to 60°C), show that the Mo/Si atomic ratio in the surface composition of the catalyst particles to the Mo/Si atomic ratio in the bulk composition of the catalyst was 0.68 .

Applicants note that present Claim 4 contains the feature that B/A (*supra*) is not greater than 0.6.

The catalyst of present Claim 4 and the catalyst of Sasaki are prepared by different process. The inlet/outlet temperature difference of Comparative Example 1, like Sasaki, is well outside of the inlet/outlet temperature difference of 20°C to 60°C. Comparative Example 1 produces a catalyst with a B/A ratio of 0.68. In contrast, the catalyst of present Claim 1 has a B/A ratio of not greater than 0.6. Sasaki's catalyst, like the catalyst of

Comparative Example 1, has an inlet/outlet temperature difference of 110°C. Like Comparative Example 1, Sasaki's catalyst, based on the inlet/outlet temperature difference, would be expected to have a B/A ratio of greater than 0.6. The Office has offered no convincing proof and no convincing rationale of why, based on the data, Sasaki's catalyst would not have a B/A ratio greater than 0.6.

Accordingly, Applicants submit that the catalyst of present Claim 4 is distinguished from Sasaki. Withdrawal of the anticipation rejection is respectfully requested.

Applicants submit the present application is now in condition for allowance. Early notification to this effect is earnestly solicited.

Respectfully submitted,

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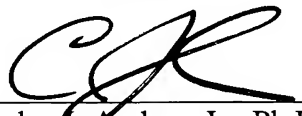

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